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No Days 2, 5 or 6

FOR INTERNAL ROUTING ONLY

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* GPO : 1966 O-797-276

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02 22 45 44 CMP ... the sextant ...

02 22 46 06 CMP How's that flight plan looking ...?

02 22 46 29 CDR A little bit of - a little bit of - Left yaw - a little bit.

02 22 47 16 LMP ... we'll just have to get one. But you can't for 30 minutes ... Well, you can ...

02 22 47 28 CMP Who wants hot water, quick?

02 22 47 29 LMP I do. ...

02 22 48 11 LMP Houston, Apollo 8. Over.

02 22 48 18 LMP Are you going to be able to dump that tape prior to LOS?

02 22 48 37 LMP Thank you.

02 22 48 48 LMP This is a report of the photography accomplished on REV 1. We got target 68, target 72, target 90, and the terminator photography - near-side terminator, REV 1, south. I had cameras 1 and 2 configured properly. Camera - camera 2 now reads - simply one exposure on MAG G. That's the high speed; we've had zero exposures on MAG G.

02 22 54 22 LMP Okay, that's up to the right.

02 22 54 43 CMP Okay, at 70:55, we're going to pass over - ...

02 22 54 51 CDR We've got to get the TV going here now ...

02 22 54 54 LMP Okay, MAG D - was on camera 2.

02 22 54 58 CMP What?

02 22 55 03 LMP One exposure - two exposures at this time. We had one exposure on MAG A.

02 22 55 25 LMP MAG E was used for the targets previously mentioned, and is now indicating 30 - 30 exposures; that's MAG Echo.

02 22 55 35 CDR Go ahead, Houston; Apollo 8.

02 22 55 43 CDR Thank you.

02 22 55 55 LMP Magazine - magazine J was on the 16-millimeter camera, run at one frame per second, starting about 10 minutes after LOI -

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Day 3

100

02 22 56 19 CMP Okay, this is ...

02 22 56 32 LMP Thank you.

02 22 56 40 LMP MAG H - When you're through taking MAG H, I'll ...

02 22 57 00 LMP MAG H was on the 16-millimeter cam - -

02 22 57 02 CMP ...

02 22 57 03 LMP - - 16-millimeter camera, run at one frame per second,
at - Look at that f-stop.

02 22 57 13 CDR 8.

02 22 57 14 LMP On f:8 through the entire REV.

02 22 57 26 LMP We now have MAG - What was that again, J? - MAG J
installed for the second pass.

02 22 57 50 CDR Are you all set with the TV, Bill?

02 22 57 52 LMP Oh, we've got a long time.

02 22 57 54 CMP The TV doesn't come until at 30 minutes ...

02 22 57 58 LMP Next - next AOS?

02 22 58 01 CMP ... the flight plan.

02 22 58 11 CDR Next AOS is 30.

02 22 58 16 LMP 71:39.

02 22 58 17 CDR Yes.

02 22 58 18 CMP 71:30 would be ...

02 22 58 20 CDR ... half an hour.

02 22 58 23 CMP Is that right?

02 22 58 24 LMP Yes.

02 22 58 25 CMP Well, I guess we don't do ...

02 22 58 27 LMP No, we can't do them all at once.

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Day 3

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02 22 58 29 CDR All at once?

02 22 58 45 CMP ... the earth ...

02 22 58 46 LMP No.

02 22 59 02 CMP Are you going to ...?

02 22 59 05 LMP I think you better yaw first ...

02 22 59 09 LMP What was that time again? 71:30?

02 22 59 15 LMP You don't have AOS until 71:39 ...

02 23 00 12 CMP Well, 12.2 is ... 128.

02 23 00 19 CMP ... TV pass is ...

02 23 00 39 LMP Well, I guess we could get it; you know this S-band is actually just pointing a little - a little more underneath than ...

02 23 00 55 CMP Okay, Bill, while we're going around here -

02 23 01 13 CDR How's your time? Sunrise is 71:00.

02 23 01 20 CMP Holy cow! We're not too far away from ...

02 23 01 27 LMP ... right? Ask Jim.

02 23 01 36 CMP Okay. Did you see my ...?

02 23 01 39 CDR ... camera ...

02 23 01 46 LMP What does - what does it say there in the flight plan, Frank?

02 23 01 52 CMP Hey, Frank, think I should share your ... the next ... because you're going to maintain the position, aren't you?

02 23 01 58 CDR ...

02 23 01 59 CMP I should get over there - Could you fly it from over here?

02 23 02 01 CDR Huh?

02 23 02 03 CMP Now you've got to maintain a position in the ...

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Day 3

102

02 23 02 06 CDR Well, that's just to ... whenever we fly ... with the COAS ...

02 23 02 16 CDR Trying to get up here.

02 23 02 18 CMP Well, look here. ...

02 23 02 23 CDR It doesn't say anything about that.

02 23 02 34 LMP One frame per second ... terminator.

02 23 02 37 CMP Let me see if I can get up here ... Yes, I just ...

02 23 03 07 CMP What do you want me to do?

02 23 03 13 LMP What do you want to do about this television?

02 23 03 15 CMP ...

02 23 03 19 LMP Well, you can go on and describe where we are.

02 23 03 20 CDR Still got that ..., Bill?

02 23 03 23 LMP I don't see it.

02 23 03 24 CMP Bill, why don't you just worry about the television as far as ...

02 23 03 53 LMP You see the terminator yet, Frank?

02 23 03 55 CDR Yes.

02 23 03 58 LMP Are you pitched down - to the horizon?

02 23 04 00 CDR Yes, down.

02 23 04 02 CMP Okay, I've got the terminator.

02 23 04 06 CMP Alright, the terminator is just coming over right now.

02 23 04 08 CDR You want your camera going, Bill?

02 23 04 10 LMP Start at - just start it a little past the terminator - Don't start a track until you get the terminator.

02 23 04 21 CMP Okay, let me ...

02 23 04 55 CMP Well, I thought we'd better - Bill, you've got - I guess you've got your instrument, right?

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Day 3

103

02 23 05 08 CMP What's the crater just before we get the terminator?
The big one?

02 23 05 12 LMP It's America.

02 23 05 14 CMP No, no, that's the real big one.

02 23 05 15 CMP/LMP It's - -

02 23 05 16 CMP It's the one that's coming up right now.

02 23 05 18 LMP Von Braun and America.

02 23 05 23 CMP This one right down here, Bill? Bill? Is that von Braun?

02 23 05 28 LMP Yes ...

02 23 05 34 CMP I think this is Freedman coming up.

02 23 06 10 CDR Have you got the terminator?

02 23 06 12 CMP Yes.

02 23 06 21 CMP It might be ...; no, I think it's Freedman.

02 23 06 44 LMP Just run it whenever you are looking down there.

02 23 06 49 CMP ... take a look at ... the flight plan.

02 23 06 53 LMP Give me that flight plan there real quick, will you, Frank?

02 23 07 04 LMP Okay, let's track along the ground and run the camera ... time.

02 23 07 20 LMP Here - It'll - At the terminator, it will be - 2.8, and it'll stay that way for a good while.

02 23 07 32 CMP ...

02 23 07 49 CDR ..., we're looking good.

02 23 08 14 CMP Okay, starting on the right now, ...

02 23 08 16 LMP No, no, no, don't - don't write it down.

02 23 08 19 CMP Well, you're going to get - -

02 23 08 20 LMP No, it - it - Wait, wait'll it comes up - -

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Day 3

104

02 23 08 22 CMP Well, why not? Why don't you get it tracking?
That thing's just going into the terminator.

02 23 08 27 LMP Well, I'd wait, or you're never going to make it through
the pass. It's the other terminator that's more important.
Just take a couple here, Frank.

02 23 08 32 CMP Alright. We should be over America right now.

02 23 08 47 LMP Now, we're passing over America.

02 23 08 50 CMP There she is.

02 23 08 51 LMP And we're coming up on von Braun.

02 23 09 01 CMP Okay, we're to the north of our track - -

02 23 09 03 LMP Yes.

02 23 09 04 CMP - - aren't we? No, we're not! My gosh, we're just
about on it!

02 23 09 12 CMP Now, can you turn up the lights a little bit because
we need this thing because we're going to - turn the light ...

02 23 09 21 CMP We're coming ... right now ...

02 23 09 44 CDR You want this thing going now, Bill?

02 23 09 45 LMP Yes, good.

02 23 09 52 CDR 3.5 still?

02 23 10 01 CDR Huh?

02 23 10 02 LMP Yes.

02 23 10 14 LMP I don't think the angle is the best, though.

02 23 10 15 CMP ...

02 23 10 20 CMP Oh, you can see out of this one. Bill, this is good
lighting for one of those.

02 23 10 35 CMP Take those pictures ...

02 23 10 48 LMP Okay, we got the six pictures of the terminator, south.

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Day 3

105

02 23 11 08 LMP That's the north, Jim. Isn't this America sitting right out here - this big one? Or did you - -

02 23 11 11 CMP No, no, we're over - still over America right now. See look at this big picture. I've got the - I've got the photograph on - -

02 23 11 18 LMP Is this von Braun right here, this big - -

02 23 11 19 CMP No, we're right in the middle of America, right now.

02 23 11 25 CMP You've got two other craters sticking up ...

02 23 11 27 LMP Right in the middle of it? Are they those -

02 23 11 39 CDR You still want it at 3.5, Bill? I think I - -

02 23 11 43 LMP I want you to keep it 2.8 until we've gone 7 minutes. ...

02 23 11 51 CMP Yes, I know. It doesn't work; it goes out.

02 23 12 13 CMP There is the big ... down below us.

02 23 12 17 LMP Is that it?

02 23 12 19 CMP Yes. ... down south right now.

02 23 12 32 LMP Why, the rim of America is very hard to see, isn't it?

02 23 12 36 CDR Yes.

02 23 12 38 CMP Yes.

02 23 12 39 LMP Okay, you're right, here's von Braun. This must be ^{the map?} von Braun, here.

02 23 12 45 LMP Yes, okay.

02 23 12 46 CMP Boy, it sure feels like you're running ... Very pretty.

02 23 12 51 LMP Okay, getting target 10.

02 23 13 20 LMP Target 10 is MAG D, frame -

02 23 13 37 CMP You should have a big crater on the side of you there.

02 23 13 57 CMP Okay.

02 23 14 09 CMP There it is. Now the target should be just straight ahead.

02 23 15 12 LMP ... target 12.

02 23 15 16 CMP I see it. Right there.

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38 min - Gap

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Day 4

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03 01 34 25 CMP 42 seconds. 42.

03 01 34 28 IMP Give me a call when the DSKY blanks.

03 01 34 30 CDR Blank!!

03 01 34 31 CMP Blank DSKY.

03 01 34 32 IMP Okay. Average g is ON; FLIGHT RECORDER to RECORD;
EMS to AUTO.

03 01 34 38 CDR AUTO.

03 01 34 41 IMP Check PIPA bias.

03 01 34 43 CMP Okay.

03 01 34 44 IMP Ullage as required.

03 01 34 46 CMP No ullage.

03 01 34 47 IMP Okay.

03 01 35 01 CMP ENABLED.

03 01 35 06 IMP 1, 2 - -

03 01 35 08 IMP/CMP 3, 4, 5, 6, 7, 8, 9, 10, 11 -

03 01 35 17 CDR Okay?

03 01 35 18 IMP Okay!

03 01 35 20 CDR Cutoff.

03 01 35 21 CMP Okay, cutoff.

03 01 35 22 IMP SPS light, OFF; okay, DELTA-V THRUST A, OFF.

03 01 35 26 CDR OFF.

03 01 35 27 IMP Helium valves are CLOSED.

03 01 35 28 IMP Okay, barber pole; SPS GIMBAL MOTORS, four, OFF, slowly.

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Day 4

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03 01 35 34 CDR 1, OFF.
03 01 35 35 LMP Got it.
03 01 35 36 CDR 2, OFF.
03 01 35 37 LMP Got it. Not quite so fast.
03 01 35 40 CDR Okay. 3, OFF.
03 01 35 41 LMP Got it.
03 01 35 42 CDR 4, OFF.
03 01 35 43 LMP Got it. Okay, TVC SERVO POWER, 1 and 2, OFF.
03 01 35 44 CDR OFF - -
03 01 36 04 LMP Proceed. Null residuals and record final residuals.
Okay? You got it? ...
03 01 36 25 LMP Okay. EMS FUNCTION, OFF.
03 01 36 29 CDR OFF.
03 01 36 31 LMP EMS MODE, STANDBY.
03 01 36 33 LMP BMAG MODE, three, RATE 2.
03 01 36 37 LMP DEADBAND, MAX.
03 01 36 40 LMP Okay, NONESSENTIAL - is OFF.
03 01 36 47 LMP TRANS CONTROL POWER, OFF.
03 01 36 59 LMP ROT CONTROL POWER DIRECT, OFF.
03 01 37 03 LMP SPS, PITCH and YAW circuit breakers, OPEN.
03 01 37 08 LMP Are they OPEN? Then CLOSE them.
03 01 37 09 LMP Okay, proceed.
03 01 37 13 LMP Turn to VERB 82 and ENTER.
03 01 37 44 LMP VERB 82. Proceed.
03 01 38 08 LMP Got it? 00, ENTER.

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03 01 38 12 LMP Proceed, and then line 37: 00, ENTER.

03 01 38 24 LMP ENTER VERB 66.

03 01 39 14 LMP Okay, SPS ...

03 01 46 36 LMP Okay, let's do the - on this DSE again.

03 01 46 48 LMP Now, I think we - I told you earlier what I thought I'd do ... and I discovered that ... I ended up with the high-speed film, in one of the cameras - I believe it was the second REV. And it's my feeling that the - target 12 was accomplished. And I believe that targets 10, 14, 16, and 19, and possibly 20 and 21 were taken with high-speed film. What is important is you should know between which craters I changed to the other camera. I believe that ... and possibly Taruntius were taken with the proper film. Also ... probably 31 and 40. Terminator photography was taken at the end of the first REV, properly configured, as indicated previously, ...

03 01 48 49 CMP One was at 26.

03 01 48 56 LMP Okay, terminator photography was accomplished at the morning far-side terminator, ... and I believe we had the high-speed camera. We used the 16-millimeter camera ... with the proper f-stop. It's been rather difficult to - to keep ... on REV 2. ...

03 01 49 53 LMP Magazine U, I have 47 exposures used, and high speed on 40 of them. We are now set up for magazine K for the - training photography, and magazine U, 70 millimeter, ...

03 01 50 25 LMP Houston, Apollo 8. Over.

03 01 50 39 LMP Houston, Apollo 8. Over.

03 01 50 47 LMP Roger; read you loud and clear, and ready for the burn status report.

03 01 50 55 CDR Houston -

03 01 50 56 LMP Roger; the burn was on time; 11 seconds; 0.2 was V_{gx} ; 1.8 V_{gy} - that's minus 1.8; minus 0.2 V_{gz} . DELTA- V_c was minus 20.4; VERB 82 gives us an apogee of 62 and a perigee of 60.8.

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03 01 52 17 CDR Roger.

03 01 52 21 CMP Hey, Bill.

03 01 52 22 LMP Yes.

03 01 52 23 CMP Are you looking for one of those ...?

03 01 52 54 CMP ... if that's where you put it.

03 01 57 30 LMP ... number 58, magazine - C.

03 01 59 04 LMP Houston, how are you reading Apollo 8?

03 01 59 14 LMP You're loud and clear.

03 02 00 47 CDR Houston, Apollo 8. We're on high gain now if you want to get the high-speed data to look at that burn.

03 02 01 01 CDR Okay, I think I've made a mistake, on the last ... DSE ... I've gotten confused here. ... Can you hold it for about 5 seconds - about 1 minute?

03 02 01 29 CDR Okay.

03 02 01 31 CMP Wait just a second; 58 is not around - starting on frame 61.

03 02 01 39 CDR Okay, you can dump the data now.

03 02 01 51 CDR Did you get it?

03 02 01 54 CDR Have you updated the -

03 02 06 43 LMP Houston, Apollo 8. ... meal 4, day - day 4, meal ...

03 03 13 28 CDR Man, that's a charm.

03 03 13 35 LMP Magazine E showing 95 exposures will be used for far-side terminator south photography for REV 4 and target 10 and 20 series which we believe were shot by the high-speed film on REV 1. We're using magazine I and magazine D to do the vertical stereo. Both of those show zero.

03 03 22 18 LMP Okay. Frame number 104 was taken into von Braun -

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03 03 22 39 LMP - which showed an interesting little ridge down the middle of it in one of the turtleback stills in one - in the little side crat - in the center to the east.

03 03 23 06 LMP The next exposure was taken at 75:23:06.

03 03 23 32 LMP Target 19.

03 03 23 39 LMP Exposure 116.

03 03 23 51 LMP And was taken at 1/60th of a second at 5.6 with the terminator. We'll do it at 250th - that's good enough.

03 03 24 13 LMP Spotmeter readings vertically are recorded on the map for lumens -

03 03 24 27 LMP And they're all reading between 160 and 320.

03 03 24 36 LMP Oblique: about 4 in the - between 460 and 320.

03 03 25 39 LMP What time have you got, Frank?

03 03 25 42 CDR ...

03 03 25 45 LMP Okay, going for target number 14, magazine E, frame 116.

03 03 26 22 LMP 116 will be a target-of-opportunity photo showing some mountains on the horizon.

03 03 27 08 LMP Okay, camera number - vertical stereo camera was put to 5.6 from 2.8 at 75:27.

03 03 28 02 LMP Huh?

03 03 28 42 LMP What time have you got, Frank?

03 03 28 46 CDR 75:28.

03 03 29 33 LMP Okay -

03 03 29 39 LMP What's the time?

03 03 29 40 CDR 12:23.

03 03 29 41 LMP Starting at 12:23 on the event timer, we're going across what I think is - is Washington, though it's very hard to tell.

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Day 4

111

03 03 30 04 LMP Target 19 was taken with MAG E, about frame 107; series of three.

03 03 30 41 LMP Make it a series of four.

03 03 31 04 LMP Okay, we finished - target 19; four exposures on frame 111.

03 03 31 26 LMP What's your time, Frank?

03 03 31 30 CDR 14:05 ...

03 03 31 52 LMP We should have put this over in your window. How about - Can you take this in your window?

03 03 32 01 CDR Now, you want it while it's running?

03 03 32 03 LMP Yes, go ahead. It's getting in the way of this other one.

03 03 32 07 LMP I'll count out the exposures for you.

03 03 32 12 LMP Yes.

03 03 32 20 LMP Can you call out your time, Frank, please?

03 03 32 22 CDR 15 minutes.

03 03 32 23 LMP 14?

03 03 32 24 CDR 15.

03 03 32 37 LMP Okay, target number 23; 15 minutes; frame 112.

03 03 33 06 LMP (Cough)

03 03 33 37 CDR I've got to use that (yawn) - I've got to roll right.

03 03 34 08 LMP Time, Frank?

03 03 34 11 CDR 16:55.

03 03 34 16 LMP Turn it to f:8 if you haven't got it there already.

03 03 34 20 CDR That's where it was when you handed it to me.

03 03 34 21 LMP Good.

• 03 03 35 10 CDR 17:15.

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112

03 03 35 11 LMP Okay.

03 03 35 45 LMP Fresh impact crater: MAG E, frame 117, about 18 minutes.

03 03 38 14 LMP Will you give me a VERB 64, Frank?

03 03 38 21 LMP I've got a bunch of scraps here - they're to be shot - would you give me the end tape --

03 03 38 24 CDR ...

03 03 38 30 LMP Okay.

03 03 38 34 LMP Okay.

03 03 39 17 LMP Okay, frame - hope I'm not losing count here.

03 03 39 27 LMP Okay, definitely frame 114, target of opportunity, extremely fresh impact crater.

03 03 39 46 LMP Time: 75:39:30.

03 03 40 51 CDR You want to rotate in 6 minutes, Bill?

03 03 40 56 LMP Not now, I'm checking here.

03 03 41 00 LMP Frame 115, another extremely fresh impact crater taken at 75:41. If the window was a little more clear, I - Looks like it might be up on the top of the hill.

03 03 41 32 LMP What time do you have, Frank? Is it 20?

03 03 41 36 CDR 25 almost. 24:19 now.

03 03 41 37 LMP Okay, let's go.

03 03 41 42 LMP Did they give you a time to rotate?

03 03 41 47 CDR What?

03 03 41 48 LMP Did they give you a time to rotate?

03 03 41 51 CDR ... wants me to rotate 75:46.

03 03 41 54 LMP Yes, we've got a ways to go yet.

03 03 41 57 CDR 3 minutes - No, it's 5 minutes.

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Day 4

113

03 03 42 31 LMP Okay, let's go - f:11.

03 03 46 06 CMP What time are you supposed to be pitching up?

03 03 46 09 LMP I don't pitch up until ...

03 03 46 10 CMP Okay.

03 03 46 27 CDR Alright, we're going to roll.

03 03 46 33 CDR Ready? Set.

03 03 46 47 LMP The impact crater was at - just prior to subsolar point on the south side, and the floor of it, didn't really get to - There is one dark hole, and I couldn't get a quick enough look at it to see if it might be anything volcanic.

03 03 47 30 CDR Oh, my God! Look at that picture over there! Here's the earth coming up. Wow, is that pretty!

03 03 47 37 LMP Hey, don't take that, it's not scheduled.

03 03 47 39 CDR (Laughter) You got a color film, Jim?

03 03 47 46 LMP Hand me that roll of color quick, will you - -

03 03 47 48 CMP Oh man, that's great!

03 03 47 50 LMP - - Hurry. Quick.

03 03 47 54 CDR Gee.

03 03 47 55 CMP It's down here?

03 03 47 56 LMP Just grab me a color. That color exterior.

03 03 48 00 CMP ...

03 03 48 01 LMP Hurry up!

03 03 48 06 LMP Got one?

03 03 48 08 CMP Yes, I'm looking for one. C 368.

03 03 48 11 LMP Anything, quick.

03 03 48 13 CMP Here.

*See later
Burger
European
trip*

*number of the film
50-368*

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Day 4

114

03 03 48 17 LMP Well, I think we missed it.

03 03 48 31 CMP Hey, I got it right here!

03 03 48 33 LMP Let - let me get it out this window. It's a lot clearer.

03 03 48 37 CMP Bill, I got it framed; it's very clear right here.
You got it?

03 03 48 41 LMP Yes.

03 03 48 42 CDR Well, take several of them.

03 03 48 43 CMP Take several of them! Here, give it to me.

03 03 48 44 LMP Wait a minute, let's get the right setting, here
now; just calm down.

03 03 48 47 CDR Calm down, Lovell.

03 03 48 49 CMP Well, I got it ri - Oh, that's a beautiful shot.

03 03 48 54 CMP 250 at f:11. *5-6?*

03 03 49 07 LMP Okay.

03 03 49 08 CMP Now vary the - vary the exposure a little bit.

03 03 49 09 LMP I did. I took two of them.

03 03 49 11 CMP You sure we got it now?

03 03 49 12 LMP Yes, we'll get - we'll - It'll come up again, I think.

03 03 49 17 CMP Just take another one, Bill.

03 05 15 20 CMP I tried it. ... a problem. Would you believe the ...?

03 05 16 47 CMP Yes.

03 05 16 57 CMP Okay.

03 05 17 07 CMP That's everything.

03 05 17 09 LMP Pardon?

03 05 17 14 CMP Roll - roll right.

1 hour
26 min
gap

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Day 4

115

03 05 17 31 CMP ... okay.

03 05 17 50 CMP ... go back to your residuals. Proceed. ... 2000 ...
Okay, we should be 00 now.

03 05 18 31 CMP 00; proceed. Latitude - Okay, this is what you copied
down. Let's see, latitude and longitude, ... and
attitude ... best points at 239. Write down 239. That's
your latitude and longitude and ... attitude.

03 05 19 07 CMP Okay.

03 05 19 13 CMP Latitude, minus 06269; longitude over two, minus
78954; attitude, plus 00152.

03 05 20 20 CMP ... okay, that would be the - okay.

03 05 20 37 CMP ... the way you resolved and ...

03 05 21 10 CMP We're a little bit - We're on the fourth REV? This
is the fourth REV, right? You're just a little bit
south of ... yes, this ... stuff is really great for
this. See, he's trying to get the right attitude, here.

03 05 22 42 CMP You're 5 degrees up, huh? That's a good attitude.

03 05 27 11 CMP Okay, I just ...

03 05 27 41 CMP I wish I hadn't added the time to that.

03 05 27 54 CDR You looking it up again?

03 05 27 57 CMP Yes, I am ...

03 05 28 11 CMP Yes, there's a big probability too there's a ...

03 05 30 02 CMP 1. 2. 3. ... 4, 5. Proceed. Two balls? Two balls.

03 05 31 26 CMP ...

03 05 31 28 LMP I demanded it on that one.

03 05 31 34 CMP ...

03 05 31 36 LMP You haven't got - Do you have the one before Mike,
by any chance?

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Day 4

116

03 05 31 40 CMP I don't know; I better check. This is what you call 222, friends.

03 05 31 51 CMP Yes, this has got to be right ... I figured that once and I know I can find it.

03 05 32 18 CMP Okay. Latitude is minus 09638.

03 05 32 24 LMP Minus 09638.

03 05 32 30 CMP Okay, and longitude over two is plus 8169.

03 05 32 40 LMP ...?

03 05 32 42 CMP Plus 8169.

03 05 32 51 CMP Latitude is minus four balls 7.

03 05 33 04 CMP Okay.

03 05 34 17 CMP Okay, could you read off the latitude and longitude ...?

03 05 34 23 LMP ...

03 05 34 29 CMP 06?

03 05 36 56 LMP ... Okay, f - f:11. 250th.

03 05 37 40 CMP Okay, 27:48. You can go right ... this will give us the - ... 37:48 ...

03 05 38 34 LMP Well, if it's not ...; it'll drop to zero, if it doesn't ... because ... yes.

03 05 40 47 LMP Okay.

03 05 41 02 CDR The ... says we have to go about 50 before this should start falling.

03 05 41 17 LMP We can do nothing at the ... before HIGH bit rate.

03 05 41 27 LMP Yes, I'm going - Are you positive about that?

03 05 41 29 CDR Yes.

03 05 41 33 LMP Give me a 30-second warning when you want to say something. I'll have to stop it, ... that leaves 30 seconds ...

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03 05 42 47 CDR Yes.

03 05 43 23 CDR If it would have been LOCK, we've got - got two of them.

03 05 43 46 CMP Bill, ... Do you know I can see the horizon? Can you see the horizon?

03 05 43 59 LMP Pitch up?

03 05 44 00 CMP Yes, pitch up to -

03 05 44 20 CDR Pitch is about 50.

03 05 44 23 CMP Can you pitch up some more?

03 05 45 20 CMP No, that's about right. Let's take pictures of ... You see the ... right there.

03 05 46 37 CDR Houston, Apollo 8. How do you read?

03 05 46 40 CMP You have the ...?

03 05 46 43 LMP Yes, I've got it over here.

03 05 46 45 CMP You've got it?

03 05 46 46 LMP Here you go; I'll pass ...

03 05 47 04 CDR Houston, Apollo 8. Go ahead.

03 05 47 11 CDR Roger. Looks like the evaporator - looks like the evaporator is holding okay; at least it tries to. But it dropped the temperature down to about 32 and now it's picking back up again to stabilize at about 42 degrees.

03 05 48 14 LMP Do you need any more film there, Jim?

03 05 48 30 CDR Okay, if I'm ...

03 05 48 32 CMP Huh? Okay.

03 05 48 40 CDR Houston, Apollo 8.

03 05 48 49 CMP Roger, Houston; this is Apollo 8. What we are doing on the control point tracking - I managed to look for CP 1 at the same time we were trying to do CP 2 on this REV. I picked two marks which are just as

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small, but more easily recognizable than the ones that were given to me. I know that I can repeat the process and pick the same small point on the next REV. Now I can try to look for the control points that are written down, but I think that I have better control over the ones that we have.

03 05 49 33 CMP Roger. One more point: the control point times which you have given me are a little bit off, and I can notice by comparing the maps that these maps are not too well aligned either.

03 05 49 58 CMP That's affirmative. That's why I picked them. They're both - they're both very prominent features, and they are both very small craters about the same size as the ones we are looking for, but I can pinpoint them on a map.

03 05 50 41 CMP Yes, you need about a 10-degree pitchup from that attitude. Houston, Apollo 8.

03 05 50 54 CMP Roger. One more comment is just that, what with all the controversy at data priority meetings, it looks like 10 degrees pitchup is the best attitude to obtain the horizon so that you can follow the landmark down through the scanning telescope. If we pitch down any more, a full-up trunnion will not gather - get the horizon, and the horizon is a great help in leading yourself into the control point.

03 05 52 03 CDR How does that look, Jim? We should be about over PC 3.

03 05 52 08 CMP Well, I just sort of find PC 3 because ... get it ...

03 05 52 30 CMP Let's see, do you have that ... thing? Is that it?

03 05 52 44 CMP Go ahead.

03 05 53 11 CMP Roger, Houston. CP 1: latitude, minus 6 - 06269; longitude over two, minus 78954; attitude, plus 00152. For CP 2: latitude, minus 09638; longitude over two, plus 89691; attitude, minus 00007. I tried to get CP 3 at the - at the same time, but I - I let it get by to get set up for the first crack at the landing site.

03 05 54 14 CMP Roger. CP 1: latitude, minus 06269; that's the latitude. The longitude over two for CP 2: plus 81691.

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03 05 54 40 CMP And it appears that RESOLVE, MEDIUM is a very good combination to use around the ...

03 05 54 54 CDR Yes.

03 05 54 57 CMP And it appears so far, Houston, that no spacecraft pitch motion is required to get five marks on the target in plenty of time.

03 05 55 21 CDR Okay, let's get ready for - Here's a couple of ...

03 05 55 56 CMP How's the water boiler doing, Frank?

03 05 56 40 CMP Okay, that would be 78 percent.

03 05 57 03 CMP Frank, could you just get me ...?

03 05 57 15 CMP Hey, Frank, why don't you go ahead and get some sleep?

03 05 58 41 CMP Yes, Frank.

03 05 58 49 CMP Yes, roll some up there.

03 05 58 57 CMP Okay, just hold it there, 10 degrees down and - Are you sure you're aligned good? Did you use the landing site? Okay.

03 05 59 17 LMP I got about a 10-degree yaw, here, Jim, ...

03 05 59 51 LMP Okay, Jim, what's the other ...?

03 05 59 54 LMP You going to be turning it off?

03 06 00 10 LMP ... which one was this? Control point sighting? CP number 526?

03 06 00 16 CMP No, this will be landing mark zero, AUTO OPTICS.

03 06 00 25 LMP What - what's that? ... pseudo landing site?

03 06 00 40 CMP I got ... Is that about 10 degrees?

03 06 00 47 CMP Oh, ... I think that's perfect. The horizon just comes up to the top ... zero optics.

03 06 01 25 CMP (Singing)

03 06 02 59 CMP Pitch up there about 7 degrees.

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03 06 04 07 CMP Okay, we'll stop and compute the ... right now.

03 06 04 19 CMP Go ahead.

03 06 04 20 LMP Go ahead, Houston.

03 06 04 35 LMP Okay, ...

03 06 04 43 LMP You have some updates here ...

03 06 04 50 CMP Okay, now we might get a program alarm.

03 06 04 52 LMP Okay, I've got the ...

03 06 05 35 CMP Okay, what I'm going to do now, is ...

03 06 06 41 CMP Okay, I ... a little bit - yaw to the right. You're indicating 50 degrees in pitch and yaw ... Oh, this ... is a piece of cake. It's a real piece of cake.

03 06 07 21 CMP ... about 3 minutes fast in ...

03 06 07 59 CMP ... yaw ... roll left instead of right ...

03 06 08 05 LMP Okay, how's your TEMP?

03 06 08 40 CMP For your information, Houston, instead of ... the landing site again, I'm going to give it to AUTO OPTICS, now. ... one ... it's very easy to distinguish ... and I can even pick out the - If I can see ... landing site even though it's still about 60 degrees trunnion.

03 06 09 05 CMP Okay, let's - -

03 06 09 07 LMP Roll right?

03 06 09 23 LMP Here we are.

03 06 09 25 CMP Okay.

03 06 09 34 LMP How far below 10 degrees are you reading, anyway?

03 06 09 38 CMP I don't know, just don't worry about it.

03 06 09 40 LMP Oh, okay.

03 06 09 46 LMP What kind of a pitch are we reading?

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03 06 11 24 CMP Okay.

03 06 11 26 LMP Which way do you want to roll? Roll left?

03 06 12 47 LMP Okay.

03 06 13 00 LMP Yaw up, roll right 180 ... 2 degrees ... 2 degrees ...

03 06 13 26 CMP Call them ...

03 06 13 32 CMP Go ahead, Houston.

03 06 13 48 CMP Roger; I found out it didn't work ... MANUAL OPTICS ...

03 06 14 45 CDR Houston, Apollo 8. Stand by 1.

03 06 16 49 CDR Go ahead, Houston.

03 06 17 12 CMP Roger, or I could use no landmark AUTO OPTICS instead of the code.

03 06 17 37 CMP Okay, let me ...

03 06 36 05 LMP Okay. Okay, IMU align, REFSEMAT - We've done that.

03 06 36 17 CMP Yes.

03 06 36 20 CMP I think it's better.

03 06 36 22 CMP Okay. Did you finish that camera, or do you want me to do it?

03 06 36 27 LMP No, I never got around to that.

03 06 36 29 CC Apollo 8, Houston. Over.

03 06 36 32 CMP Go ahead, Houston.

03 06 36 35 LMP Hey, that thing is so loose it's coming apart.

03 06 36 37 CC ...

03 06 36 50 CMP Roger; will do.

03 06 36 52 LMP Okay, I'm going to go to BLOCK, right?

03 06 36 55 CMP Yes.

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03 06 36 57 LMP Okay.

03 06 37 00 CMP That's in the checklist, isn't it - VERB 47 - or the flight plan?

03 06 37 06 LMP What's that?

03 06 37 08 CMP Transfer of the state vector.

03 06 37 09 LMP Yes. You did the IMU alignment? Think the GDC will last for another REV or not?

03 06 37 21 CMP That's okay.

03 06 37 26 LMP Roll 180 degrees at 2 degrees per second.

03 06 37 45 LMP You ready to roll, Jim?

03 06 37 47 CMP Yes, you're going back to what now?

03 06 37 55 CMP You're just going back to the landmark again.

03 06 38 00 LMP Yes.

03 06 38 01 CMP Okay. You got - Do you have a map update, Bill?

03 06 38 07 LMP Yes.

03 06 38 19 LMP I got it.

03 06 38 20 CMP Go ahead, Houston.

03 06 38 23 CC ...

03 06 38 35 LMP Yes, he's asking if we didn't have anything to say.

03 06 38 38 CMP Yes.

03 06 38 40 LMP Roger. We didn't have much to say - We couldn't see out the windows very well, Mike.

03 06 38 47 LMP It's really too bad.

03 06 39 07 CMP Okay. Here's a piece of camera equipment. Where does this go?

03 06 39 18 LMP Stick it down in that box on the left - on your right-hand side - in one of those boxes.

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03 06 39 22 CMP You still got about a quarter of a roll of film left -- a little more than that.

03 06 39 30 LMP Okay, man.

03 06 39 31 CMP I'll stick it in my pocket.

03 06 39 32 LMP We might as well use it.

03 06 39 36 CMP In order to identify it, why don't I just take this one off?

03 06 39 50 LMP Here's your map, and here's your book, Jim.

03 06 39 52 CMP Okay. Okay, let me make sure I'm ...

03 06 40 05 LMP Have you got through reviewing your landmark map?

03 06 40 09 CMP Okay, now here's what we have to do this time, Bill. I've got two AUTO OPTICS positions in, and -- and -- I've got to get a third landmark. Okay, let me see. The time would be --

03 06 40 34 CC ...

03 06 40 36 LMP Go ahead.

03 06 40 39 CC ...

03 06 41 01 LMP Okay. I guess the 60-degree limit does still hold, huh?

03 06 41 46 CC ...

03 06 41 52 LMP Okay. We just don't want to boil our IMU.

03 06 41 56 CC ...

03 06 41 59 LMP No, the --

03 06 42 01 CC ...

03 06 42 04 LMP Roger, Houston.

03 06 42 06 LMP No, they just said don't worry about the sixt -- No, it's working, but they said if it does act up, don't worry about the --

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